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**THE GENUS POMOXYS, RAFINESQUE.**

BY D. S. JORDAN AND H. E. COPELAND.

Among the fishes sent by Prof. S. A. Forbes from the State Normal University of Illinois to us for examination, were many specimens of *Pomoxys*, known in the Western States as "Crap-pie." We have prepared the following review of the species that have been referred to this genus, and append the synonymy for future reference.

The genus was described in 1820 by Rafinesque, page 33 of his *Ichthyologia Ohiensis*, in these words: "Body elliptic, compressed, scaly. Vent anterior. Head scaleless, jaws plaited extensively, roughened by very minute teeth. Gill-cover smooth, scaleless; operculum forked beneath; operculum membranaceous and acute posteriorly. Thoracic fins without appendage, but a spiny ray. One dorsal fin opposite the anal, both with many spiny rays." This description has been accepted as sufficiently accurate by most authors, and the genus adopted. Rafinesque referred to the genus one species, obtained at the Falls of the Ohio, with the following description, drawn undoubtedly from the same specimens that suggested the genus: "Silvery; back olivaceous, with some geminate brown transversal lines; a golden ring at the base of the tail; lateral line straight; dorsal and anal fins with six spiny rays; a marginal black spot behind both fins; tail lobed; lower jaw longer. Length 3 to 6 inches. Diameter equaling three-tenths of the length." He called his species *annularis*.

In the "Report of the Zoölogy of Ohio," Dr. Kirtland described the same fish under the name of *Cichla Storeria*, but dropped this name on information from Dr. Storer that Cuvier and Valenciennes had already described it under the name of *Centrarchus hexacanthus*. We have not seen Kirtland's original description, but in November, 1840, in a report on the "Fishes of the Ohio and its Tributaries," in the "Boston Journal of Natural History," vol. iii. p. 480, he gave a description of the fish, made evidently partly from the specimen in hand, from which a good drawing was made (pl. xix., fig. 2), and partly from the real *hexacanthus* of C. and V., a fish that is now commonly placed in the genus *Hyperistius* of Gill. The localities he mentions show that he supposed *Hyperistius*

and *Pomoxys* to be one fish, if the description was not conclusive. In the "Memoirs of the Am. Acad. of Arts and Sciences," new series, vol. ii., 1846, Dr. Storer, in his "Synopsis of the Fishes of N. A.," p. 290, relying on the truth of the information he had given Kirtland, copied the latter's description, with a brief addition, and used the name *Centrarchus hexacanthus*. He gave data of two specimens, one a *Hyperistius*, and the other a *Pomoxys*. The localities and synonymy quoted referred to *Hyperistius*, *Pomoxys*, and what may have been *Centrarchus irideus*.

In 1854 Professor Agassiz, in "The Fishes of the Tenn. River," p. 4 (of reprint), referred a specimen sent to him from that river, to *Pomoxys annularis* Rafinesque, saying it "agreed fully" with his description, except in wanting the ring at the base of the tail. How Professor Agassiz overlooked the statement that the head and gill-covers are "scaleless," is not easily accounted for by us. There can be no doubt, however, about his course in the event of his recognizing this as an error, for he had then taken the ground, since occupied by all our naturalists, that it is better to eliminate error from a recognizable description than to propose a new genus or species.

In the Zoölogical report in the Pacific Railroad Reports, 1858, vol. x. p. 5, Girard reviewed the genus in his characteristic way. He arranged his material in the following manner, that we give in full to show the confusion into which the synonymy was falling:—

1. *Pomoxis sparoides*, Grd.  
     = *Labrus* spar, Lac.  
     = *Centrarchus* spar. C. and V.  
     =       "      *hexacan.* Holb. Ich. S. C., pl. 6, fig. 1.
2. *Pomoxis nigromaculatus*, Grd.  
     = *Cantharus nigromac.* Le Sueur, fide C. & V.  
     = *Cichla Storeria*, Kirt.
3. *Pomoxis annularis*, Raf.  
     "described, or rather recorded, by Rafinesque."
4. *P. nitidus*, Grd.  
     Pl. ii., figs. 5-8 (new species).

We are not bold enough to tell what this all means, except that *Pomoxis nitidus*, Grd., surely is *Pomoxis annularis*, Raf.

In the "Proc. Ac. Nat. Sc. of Phila.," 1865, p. 64, Professor Gill gave a "Synopsis of the genus *Pomoxys*, Raf.," "to dissipate the confusion." He cleared away, in a satisfactory manner, the mistakes of his predecessors, coming to the undoubtedly correct

conclusion that but one species of *Pomoxys* was yet known, calling that *storerius*, for reasons following, and added three new nominal species of his own. Of *storerius* he says: "This species has been quite unfortunate in its nomenclature;" and, "This species was first intelligibly noticed by Dr. Kirtland, who, in the 'Report on the Zoölogy of Ohio,' introduces it under the name of *Cichla Storeria*;" and "the name *Cichla Storeria* must therefore be accepted as the specific appellation of the species described by Dr. Kirtland if Rafinesque's is deemed unworthy of adoption." As between the *specific* descriptions of Rafinesque and Kirtland, on comparison of a specimen from the Ohio with each, I have no hesitation in saying that Rafinesque's is the better of the two. Without, therefore, resorting to the unanswerable argument that since there is but one species of *Pomoxys* in the region reported on by the two men, and that, therefore, Rafinesque's specific name must stand on as good footing as his generic name, we retain *annularis* on the ground of its accompaniment by a prior and recognizable description.

In regard to the three new "species," we find by an examination of the specimens from Normal, labelled as from the streams of Central and Southern Illinois, the following data:—

The variation ranges in the dorsal spines from v. to viii.; in the dorsal rays from 14 to 16; in the anal spines from v. to vi.; in the anal rays from 16 to 19; in the scales in the lateral line from 39 to 48. The first dorsal spine goes in the diameter of the eye from 4 to  $1\frac{1}{2}$  times; the length of the caudal peduncle is to its height as 19 to 13, or as 16 to 16. Specific characters, based on the number of dorsal spines, the size of the scales, the ratio between the first dorsal spine and the diameter of the eye, or between the height and length of the caudal peduncle, are clearly untenable, falling within the range of individual variation, and therefore *Pomoxys brevicauda*, Gill, *Pomoxys intermedius*, Gill, and *Pomoxys protacanthus*, Gill, fall into the list of synonyms of *Pomoxys annularis*, Rafinesque, it being the only species of *Pomoxys* now known, unless *Hyperistius* prove to belong here.

The following is the synonymy of the species, with the localities and common names:—

## POMOXYS ANNULARIS, RAFINESQUE.

Crappie (West), New Light (Ky.) Bachelor (Falls of the Ohio).

*Pomoxis annularis*, Raf. Ich. Oh. 1820, 33. (Falls of the Ohio; Ky.).—  
Ag. Fish. Tenn. 1854, 4. (Tenn. River.)—Grd. Pac. R. R. Rep. X.  
1858, 6.

“*Cantharus nigromaculatus*, Le Sueur, fide C. and V. Hist. Nat. Poiss. III.  
1829, 88” (fide Grd.). (Wabash River, where *Hyperistius* is not  
found.)

*Cichla Storeria*, Kirt. Rep. Zoöl. Ohio, 191 (fide Kirt.).

*Centrarchus hexacanthus*, Kirt. Bost. Journ. Nat. Hist. III., 1840, 480,  
Pl. XXIX. (plate; desc. in part). (Big Miami River.)—Storer, Mem.  
Am. Ac., new ser. II., 1846, 290. (in part), (not of Cuv. and Val. fide  
Gill).

*Pomoxis nitidus*, Grd. Pac. R. R. Rep. X. 1858, 6 Pl. II., Fig. 5-8. (Hous-  
ton River, Ky.)

*Centrarchus nitidus*, Günther, I. 1859, 257.

*Pomoxys storerius*, Gill, Pr. Phil. Acad. 1865, 64.—Cope, Pr. Am. Philos.  
Soc. 1870, 251. (Missouri Riv.)—Jordan, Geol. Surv. Ind. 1874,  
215. (White River.)

*Pomoxys breviceauda*, Gill, Pr. Phila. Ac. 1865, 64. (North Grand Riv.,  
Mo.)

*Pomoxys intermedius*, Gill, Pr. Phila. Ac. 1865, 64.

*Pomoxys procanthus*, Gill, Pr. Phila. Ac. 1865, 64. (Tarboro, N. C.)

*Pomoxys annularis*, Jordan, Fishes Ich. Oh. : (Bull. Buff. Soc. Nat. Hist.,  
April, 1876, p. 89) ; Manual Vertebrates E. U. S. (in press)—Jordan  
and Copeland, Check-List N. Am. Fresh Water Fishes (in press).

*Habitat*.—Basin of the Ohio, Illinois, Missouri ; probably in all the tribu-  
taries of the Mississippi. Not in the great Lakes ? In North Carolina (fide  
Gill).